Remarks/Arguments:

It should be noted that Claims 18 and 20 have been canceled, and new Claims 42 and 43 have been added. The overall number of claims is thus unchanged, and no additional claim fees are thought to be necessary.

Applicant wishes to thank the Examiner for her comments. As Examiner has chosen to group her comments by section, Applicant shall address each of these sections and points in turn.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. No response is believed to be necessary.

Claim Rejections - 35 USC § 102

2-3. Examiner has stated:

"Claims 17-36 rejected under 35 U.S.C. 102(e) as being clearly anticipated by Hemmings et al, US Patent no. 6,916,863.

"The patented invention is a fly ash filler or filler blend that can be combined with a polymer at higher filler loadings to produce a filled polymer for polymer composites that can result in improved mechanical properties for the polymer composites as compared to polymer composites using conventional fillers. The resulting polymer composites can be produced at a lower cost than conventional polymer composites.

"The filler blend preferably can be loaded in the filled polymer at a filler loading of greater than 20% to about 80% percent by weight. Various polymers can be used in the composite such as those selected from the group consisting of polyethylene, polypropylene, polyvinyl chloride,.

"The filler can be a filler blend including fly ash and at least one additional mineral filler other than a fly ash. Suitable mineral fillers include calcium carbonate, aluminum trihydrate (ATH), milled glass, glass spheres, glass flakes, silica, silica fume, slate dust, amorphous carbon (e.g. carbon black), clays (e.g. kaolin), mica, talc. wollastonite, alumina, feldspar, bentonite, quartz, garnet, saponite, beidellite, calcium oxide, calcium hydroxide, antimony trioxide, barium sulfate, magnesium oxide, titanium dioxide, zinc carbonate, zinc oxide, nepheline syenite, perlite, diatomite, pyrophillite and the like, or blends thereof. In this

embodiment, the additional mineral filler is preferably calcium carbonate and the calcium carbonate is preferably combined with a high fine particle content fly ash filler such as a lignite or subbituminous fly ash (e.g. having a median particle size of 10 microns or less). The filler blend can include from about 0.1% to about 99.9%, more preferably about 10% to about 90% by weight of the fly ash and from about 99.9% to about 0.1%, more preferably about 90% to about 10% by weight of the at least one additional filler.

"In addition to the polymer and the filler of the invention, the filled polymer used in the polymer composites can include one or more additives. Suitable additives include surfactants, blowing agents, flame retardants, pigments, antistatic agents, reinforcing fibers (e.g. glass fibers), antioxidants, preservatives, water scavengers, acid scavengers, and the like. In addition, coupling agents can be used with the fly ash fillers of the invention for certain polymers. Suitable coupling agents include silanes, titanates, zirconates and organic acids.

"The polymer composites including the filled polymer of the invention can be used in carpet backing, shingles and asphalt products, automotive products (e.g. sheet molding compounds, bulk molding compounds and injection molded thermoplastic parts), commodity and engineering plastics, pipe, conduit, polymer concrete, vinyl flooring, rubber matting and other rubber products, paints, coatings, caulks, putties, dry-wall jointing compounds, adhesives, mastics and sealants. The polymer composite can include additional materials in combination with the filled polymer as would be readily understood to those skilled in the art.

"Hemmings et al disclose all components of the presently claimed invention. No patentable difference is readily ascertained. See col. 1, line 50 through col. 3, line 65 and col. 7, line 26 through col. 9, line 39"

It is noted that Examiner has rejected claims 17-36 *en masse* without apparent consideration of the features of the individual claims. It is respectfully requested that Examiner consider the features of both the independent and dependent claims in detail.

However, since there has been no comment on the individual claims, Applicant will consider the independent Claims 17 and 29 primarily, since there are features in both which have not been cited in the Examiner's rejection.

Claim 17, as currently amended, recites:

"17. A formulation for thermoplastic synthetic building material which is formulated for extrusion processing, comprising:

filler material of proportions of 65% - 90% of overall composition;

thermoplastic resin of proportions of 10% - 35% of overall composition; and

an extruder processing stabilizer/lubricant, wherein said extruder processing stabilizer/lubricant is a metallic stearate, and wherein said filler material, said thermoplastic resin and said extruder processing stabilizer/lubricant combine to form a thermoplastic material."

Applicant has searched the *Hemmings* patent and has found no reference to an extruder processing stabilizer/lubricant as an included element. As recited in the present specification, on page 7, lines 18-29:

"It has been found that thermoplastic resin in combination with a high proportion of mineral filler cannot be extruded through conventional extrusion processes. Conventional extrusion processes are also complicated by the introduction of high filler content into thermoplastic resin because of the viscosity differences and as well as the different flow abilities of the materials. In the present invention these complications were overcome by using a special processing stabilizer/lubricant. The processing stabilizer/lubricant could be selected from either of the group like metallic stearate, hydrocarbons, fatty acids, esters, amides fluoropolymers, silicones, and boron nitride, but metallic stearates (Calcium, Zinc and/or Aluminium Stearate) will be the most preferred. The criteria for the selection of metallic stearate was on the basis of factors like thermal stability, compatibility with the polymer matrix, melting point lower than polymer processing temperatures, optimum particle size to obtain maximum dispersibility and appropriate price-performance ratio."

Thus, the element of an extruder processing stabilizer/lubricant is assertedly not taught by the cited *Hemmings* reference. Claim 17 specifies that an extruder processing stabilizer/lubricant is included, and further has been presently amended to specify that the stabilizer/lubricant is a metallic stearate, which has additionally not been found in the cited reference.

Similarly, Claim 29, as currently amended, recites:

"29. A synthetic thermoplastic building material formulated for commercial extrusion processing, said material comprising:

filler material of proportions of 65% - 90% of overall composition;

thermoplastic resin of proportions of 10% - 35% of overall composition; and

extruder processing stabilizer/lubricant which is metallic stearate, wherein said filler material, said thermoplastic resin and said extruder processing stabilizer/lubricant combine to form a thermoplastic material."

Thus Claim 29 also includes the required element of an extruder processing stabilizer/lubricant, and additionally has been presently amended to specify that the extruder processing stabilizer/lubricant is a metallic stearate, which has additionally not been found in the cited reference.

This element is important for the composition of the formulation and the material. As disclosed in the present application, page 3, line 10 through page 4 line 4:

"…..there are advantages to forming plastic or plastic-like materials through extrusion processes. Advantages of extrusion process over injection molding process include 1) lower capital cost for extrusion machinery, 2) lower capital cost for dies/molds, 3) higher length to diameter ratio (L/D) for extrusion process which provides various advantages like increased output rate, lower melt temperatures, less pressure and temperature variations and improved mixing., and 4) higher production as there can be constant output with extrusion compared to intermittent production with injection molding because injection molding process is limited by cycle time. 5) highly viscous materials can be handled with extrusion process while in injection molding lower viscosity of the material is necessary to be able to fill the molds. 6) multi-layered products can be manufactured using co-extrusion process which is not feasible with injection molding process.

"Despite these advantages, flow characteristics of raw materials are generally not suitable for extrusion process without carefully devised additives to the raw material, and thus the extrusion process has not been used to its potential as a commercial forming process.

"It has been found that thermoplastic resin in combination with a high proportion of mineral filler cannot be extruded through conventional extrusion processes. Conventional extrusion processes are also complicated by the introduction of high filler content into thermoplastic resin because of the viscosity differences and as well as the different flow abilities of the materials. A mixture having a high proportion of mineral filler generally cannot be extruded through conventional extrusion process because raw materials are too viscous to

process without a stabilizer/lubricant, and mixing of raw materials is insufficient without a stabilizer/lubricant. In order to produce a mixture that can be formed by extrusion as a practical commercial operation, it would also be desirable to provide better surface wetting between the surface of the mineral filler and the thermoplastic resin, and to provide a lubricating effect to aid in processing of a formulation with relatively high filler content."

Thus, the formulation of a thermoplastic synthetic building material having such a high proportion of filler material requires the addition of this carefully devised additive of a stabilizer/lubricant to the raw material. Without it, the extrusion process is difficult and has not been used to its potential as a commercial forming process. As will be discussed later, a Declaration of Commercial Success is attached which gives objective evidence that these difficulties have been overcome by the formulation of the present invention, thus enabling the extrusion process to be utilized in a commercially successful manner.

Thus, it is respectfully asserted that independent Claims 17 and 29 include features not found in nor taught by the cited reference. Claims 19, 21-28, and new Claim 42 are dependent on independent Claim 17, and Claims 30-41 and new Claim 43 are dependent on independent Claim 29, and inherit by their dependence the assertedly novel features of Claims 17 and 29. Claims 18 and 20 have been canceled.

New Claims 43 and 44 include material taken directly from the portions of the present specification cited above, and cannot be said to introduce any new matter, and also inherit the novel features of independent Claims 17 and 29 by their dependence.

Thus, it is respectfully requested that Examiner withdraw the rejections of Claims 17, 19, and 21-36, and allow these claims.

Claim Rejections - 35 USC § 103

4-5. Examiner has stated:

"Claims 17- 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hemmings et al as applied to claims 17- 36 and further in view of Spain et al, US Patent No. 5,662,977 and Miller et al, US Patent No. 4,844,849.

"Spain et al discloses a process for making extruded plastic siding panels with embossed decorative wood grain surfaces. The process is useful in the manufacture of outdoor weatherable embossed plastic siding panels used for the surfacing of frame buildings or other outdoor structures. The invention will be described in relation to its use in the manufacture of extruded vinyl (PVC) siding panels, although the invention is equally applicable to the manufacture of panels made from other extrudable plastic substrate materials such as polystyrene, acrylonitrile-butadiene-styrene (ABS), nylon, ethylene-vinyl acetate (EVA), polycarbonate, polyethylene, polypropylene, polyethylene terepthalate, thermoplastic olefins, acrylonitrile-styrene-acrylic (ASA), and alloys, blends or coextrusions of these resins. See col. 3, line 1.6 through col. 4, line 40.

"Miller et al discloses printable compositions and processes for producing embossed decorative thermoplastic resin sheets therewith. Exemplary sheets include those fashioned to resemble raised terra cotta brick set in a debossed gray mortar line. See Example 9 and claims 1-11.

"Spain et al and Miller et al document that embossed and terra cotta panels and sheets are conventionally processed from the thermoplastic materials disclosed by Hemmings et al. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to formulate such products from the resin compositions disclosed by Hemming et al."

As discussed above, Applicant respectfully asserts that the present invention includes features that are not found in the cited references namely a metallic stearate stabilizer/lubricant. This feature is not found nor fairly suggested nor made obvious by the *Hemmings, Spain* and *Miller* references, either alone or in any combination of the cited prior art.

Additionally, if such evidence is necessary, a Declaration of Commercial Success is attached which provides objective real-world evidence that the claimed present invention cannot be fairly said to be obvious. Applicant respectfully asserts

that the attached Declaration of Commercial Success clearly identifies a factually and legally sufficient nexus between the merits of the claimed invention and the evidence of secondary considerations, which is of great probative value in the determination of the non-obviousness of this invention.

To briefly summarize, the claimed invention utilizes the claimed subject matter of a thermoplastic synthetic building material and formulation which is formulated for extrusion processing, which includes a high proportion of filler material with thermoplastic resin and a metallic stearate extruder processing stabilizer/lubricant.

This element of a metallic stearate stabilizer/lubricant is a prime enabling component of the invention. It is this element that enables the invention to allow extrusion of thermoplastic material with such a high proportion of filler material in a commercially successful manner.

As recited in the Declaration, this invention has been assigned to RoofRoc Canada Limited, which is a small company, qualifying as a small entity under the laws of both the United States and Canada (which is even more restrictive, allowing only 50 employees). The Synthetic Roofing and Siding Material, which is sold under the name "RoofRoc" was introduced in 2004 for sale. Since that time, the present invention has enjoyed considerable commercial success with cumulative sales of $2,830,000. Sales for 2006 were $1,160,000 and sales for 2007 are estimated to be $1,160,000.

To date, funds spent on advertising in magazines and tradeshows has been less than 2% percent of product sales. In fact, the only advertising done so far has been through attendance at local tradeshows and placement of a small print ad. Customers generally hear about the product from other satisfied customers, who

then refer these new customers. Thus, as there have been nominal amounts expended on advertising, the success of this invention cannot be attributed to advertising.

It is respectfully asserted that a factually and legally sufficient nexus between the evidence presented in Applicant's Declaration and the claimed invention has been established, and evidence of this nexus has been provided by the attached Declaration.

Thus it is respectfully asserted that independent Claims 17 and 29 include features which cannot be said to be obvious in view of the combination of the cited references. Claims 19, 21-28, and new Claim 42 are dependent on independent Claim 17, and Claims 30-41 and new Claim 43 are dependent on independent Claim 29, and all inherit by their inheritance the assertedly novel and non-obvious features of Claims 17 and 29. Additionally, the Declaration provides objective evidence of non-obviousness.

Therefore, Applicant respectfully asserts that these claims are not obvious in view of the cited combination of references. Applicant therefore respectfully requests that the rejection be withdrawn and Claims 17, 19, 21-28, and 30-43 be allowed.

Conclusion:

Applicant has endeavored to put this case into complete condition for allowance. It is thought that the §102 and §103 rejections were unfounded on the references cited, or were overcome by the present amendments. Further, it is thought that the attached Declaration of Commercial Success provides objective real-world evidence that clearly identifies a factually and legally sufficient nexus between the merits of the claimed invention and the evidence of secondary considerations which is of great probative value in the determination of the non-obviousness of this invention.

If the Examiner would like to discuss any of the points involved in the Response, she is urged to contact Applicant's Attorney at the numbers included below.

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Respectfully submitted,

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